Mnemonic Devices
Author(s): Alan Dundes
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ALAN DUNDES
Indiana University
Bloomington, Indiana

MNEMONIC DEVICES

FOLKLORISTS have been slow to study mnemonic devices despite the fact that these devices are folklore. Though their very existence is often dependent upon the written language, particularly orthography, mnemonic devices are found in oral tradition and variants have been recorded. A. M. Hocart considers mnemonic devices as universals. He says, "One need not have studied experimental psychology to know what a strain it is to remember any disconnected matter: nonsense-syllables, figures, words strung together without rhyme or reason: everyone has some time or other tried to remember such strings of words by weaving them into a story or embedding them in mnemonic verses. It is a constant tendency of man, therefore,

to invest with meaning the meaningless if for some reason or other it has to be remembered." Even though there has been little rapport between the disciplines of folklore and academic psychology, psychologists have made similar statements. For example, Wellborn and English state, "It has probably always been recognized that connected material may be learned more quickly than unconnected material of the same general character, though the fact has influenced learning theory strangely little."[1] Although not many mnemonic devices have been recorded from certain areas of the globe, what evidence there is, does indicate universality. For instance, William H. Davenport reports mnemonic navigational formulae on the Marshall Islands and various other mnemonic devices among primitive peoples are surveyed in Theresa C. Brakeley's article in the *Standard Dictionary of Folklore, Mythology, and Legend.*[2]

The richness of the mnemonic material in modern American tradition is indicated by the variety of fields in which such devices have been noted. These fields include: Astronomy, Biology, Business Education, Chemistry, Geology, Mathematics, Music, Naval Science, Physics, Spelling, etc.[3] If anyone is sceptical about the existence of the wealth of this type of material, he should consult Will S. DeLoach's extensive compilation of mnemonic devices used in chemistry. It is gratifying to note that both Brakeley and DeLoach comment on the oral circulation of mnemonic devices. Admittedly, such devices occur in very limited contexts, but their very existence in oral tradition puts them in contrast with those elaborate memory aid schemes which have been devised since at least the time of the ancient Greeks, which do *not* enjoy oral circulation.[4] Yet one looks in vain for any treatment of mnemonic devices in folklore journals. One brief note in the *Journal of American Folklore* for 1905 indicates that mnemonic rhymes were traditional learning devices, in this case for committing the names of rivers to memory.[5]

The following mnemonic devices were, unless otherwise indicated, collected from oral tradition in Bloomington, Indiana, during the summer of 1961. Among these are included a number of naval mnemonic devices. For example, in order to facilitate remembering that there is a red light on the port side of the ship and that port is 'left,' one is told to remember the phrase: "A little *port* wine *left* in the bottle." The color of port wine is red and so is the running light on the port side of a ship.[6] Other naval mnemonics concerning lights include: "Red over white, fishing at night; white over red, pilot ahead," referring to the night lights displayed by fishing and pilot vessels. Another reminder is "Red right returning" which refers

to the fact that returning from the sea, red buoys should appear to the right—if one has entered the channel properly! One naval mnemonic has to do with correcting the compass. The list of elements to be remembered is: Compass, Deviation, Magnetic, Variation, and True. When correcting from compass to true, one can utilize the sentence: "Can Dead Men Vote Twice?" When proceeding from true to compass, one may employ the sentence: "Timid Virgins Make Dull Company (Companions)." The standard Navy lesson plan, which is supposed to be used in all U.S. Navy classes of instruction, consists of nine elements: Topic, Objectives, Materials, Introduction, Presentation, Application, Summary, Test, and Assignment. The order is faithfully preserved in the name Tomi Pasta or Tom I. Pasta. There are, of course, more important things to be memorized. Nautical rules of the road are required knowledge for shiphandlers. One mnemonic verse dealing with port-to-port or starboard-to-starboard passages states simply: "Red to red and green to green/ is a very good rule as may be seen." (In other words, if one sees a red running light on another ship, one is advised to present his own red light.)[7] Another mnemonic device found among navymen, although it is found elsewhere as well is the 'Resistor Code Reminder.' This device gives the resistance in ohms of a coded resistor. The code is: Black (0); Brown (1); Red (2); Orange (3); Yellow (4); Green (5); Blue (6); Violet (7); Gray (8); and White (9).

0	1	2	3	4	5	6	7	8	9	(ohms)
B	B	R	O	Y	G	B	V	G	W	(colors)

Thus if a resistor had a red, a green and a black band, the resistance would be 2, 5, and 0, that is, 250 ohms. The mnemonic device:

> Bad Boys Rape Only (Our) Young Girls But Violet Gives Willingly.
> Black Boys Rape Our Young Girls But Violet Gives Willingly.
> Bad Boys Run Our Young Girls Behind Victory Garden Walls.

A Mnemonic device for geology was found for remembering the Mohs Scale of Hardness. The scale in order of increasing hardness consists of Talc, Gypsum, Calcite, Fluorite, Apatite, Feldspar, Quartz, Topaz, Sapphire (Corundum), and Diamond. The key sentence is: The Girls Can Flirt and Fairly Queer Things Can Do. A version which was collected in Terre Haute, Indiana, is cited by DeLoach:[8] Troy Girls Can Flirt And Other Queer Things Can Do.

Several astronomical devices were recorded. One fragment refers to the first four planets: "Mercury, Venus, Earth and Mars/

Jesus Christ, Look at the Stars!" Another device provides a means of remembering all the planets: "M VEM, J SUN P." A means of recalling the ten Harvard spectral classes of stars was collected orally, although the device is cited by George Gamow who claims that the mnemonic sentence is known to all English-speaking astronomers. The Harvard classification: O, B, A, F, G, K, M, R, N, S, is rendered by the following sentence: "Oh, Be A Fine Girl, Kiss Me Right Now . . ." Gamow states, "As to whether S, the last letter, stands for 'Sweetheart' or for 'Smack,' there is a long-standing, still unconcluded dispute between the Harvard and the Yerkes astronomers."[9]

There are many biology mnemonics and medical students undoubtedly treasure them. For example, there is one for the cranial nerves. Since anatomy textbooks do not always completely agree on the exact names of nerves, there is some slight variation in the mnemonic sentence. The usual names of the twelve cranial nerves are: Olfactory, Optic, Oculomotor, Trochlear, Trigeminal, Abducent, Facial, Acoustic, Glossopharyngeal, Vagus, (Spinal) Accessory, and Hypoglossal. The mnemonic sentences:

On Old Olympus' Towering Tops, A Finn And German Viewed Some Hops.
On Old Olympus' Tiny Top, A Finn And German Vended Some Hop.
On Old Olympus' Terraced Top, A Finn and German View A A Hedge.

Theresa Brakeley gives the following version: On Old Monadnock's Peaked Tops, A Finn And German Picked Some Hops.[10] Another common biology mnemonic refers to the bones of the wrist in order. The bones are: Navicular, Lunate, Triangular, Pisiform, Greater Multangular, Lesser Multangular, Capitate, and Hamate. The key sentence is: Never Lower Tillie's Pants, Mother Might Come Home." The Latinate terminology probably inspires similar mnemonic devices in other countries. For example, the following mnemonic from Schleswig-Holstein (1951) was volunteered by the folklorist Gunther Selk in which the names of two bones are found in each line:

Es fährt ein Kahn im Mondenschein
Ums Dreieck mit dem Elfenbein.
Vielseitig gross, vielseitig klein
Der Kopf muss bei dem Haken sein.

One example from physics, used to remember the colors in order of the spectrum (or rainbow), is the name Roy G. Biv for red, orange, yellow, green, blue, indigo, and violet. While Brakeley cites "Read Over Your Greek Books In Vacation," she fails to mention Mr. Biv. However, the mnemonic's popularity is attested by its appearance in James Joyce's *Ulysses,* which may even serve as a means of immortalization.[11] The structuring of initial letters into proper names is not uncommon and the previously cited standard Navy lesson plan mnemonic is based on this principle.

Although there are a good many examples of mnemonics in the sciences, there are also some in the humanities. In English, there are spelling mnemonics. In addition to the well-known "i before e except after c or when sounded as a as in neighbor or weigh,"[12] there are devices for particular words, apparently difficult to spell. For instance, there is, "You're a goose if you can't spell loose" (New Haven, Conn., 1957). Another in the same vein communicated by folklorist Butler Waugh is: "If you put a double s in occasion, you are what the middle of the word spells" (Lawrence, Kansas, 1960). Perhaps one of the most useful mnemonic devices in English is the one for the parts of speech:

All names of persons, places, things,
Are *nouns,* as Caesar, Rome and kings.
Pronouns are used in place of nouns,
My thought, her work, his book, your frowns.
When the kind you wish to state,
Use an *adjective,* as great.
But if of manner you would tell,
Use *adverbs,* such as slowly, well.
To find an adverb, this test try,
Ask how or when or where or why.
Prepositions show relation,
As with respect or in our nation.
Conjunctions, as their name implies,
Are joining words, they are the ties
That bind together day and night,
Calm but cold, dull or bright.
Next we have the *verbs,* which tell
Of action, being and state as well.
To work, succeed, achieve and curb
Each one of these is called a verb.

The *interjections* show surprise,
As Oh! Alas! Ah me! How wise!
Thus briefly does this jingle state
The parts of speech, which total eight. (Chicago, 1931)

Brakeley, who annoyingly cites only bits and fragments of mnemonic devices, gives two lines of a variant: "A noun's the name of anything/ As, *school* or *garden, hoop* or *swing.*"

Mnemonic devices also aid the musician. In addition to the familiar "Every Good Boy Does Fine"[13] and "face" for the lines and spaces of the treble cleff, from top to bottom respectively, there are similar devices for the base cleff. According to folklorist Joseph Hickerson, from bottom to top, the spaces are: "All Cows Eat Grass," while the lines are remembered in the sentence "Good Boys Do Fine Always," which provides a useful complement to the treble cleff mnemonic. A somewhat unique mnemonic device in music is the one used to remember the pitches required for tuning a ukelele: D, G, B, and E. The notes are sung but invariably with the curious words: My Dog Has Fleas.

The above listed mnemonic devices do not by any means exhaust the tradition. For example, a whole series of spelling mnemonics is based on the principle found in the mnemonic for "preface": Peter Rabbit Eats Fish And Catches Eels; Eels Catch Alligators; Father Eats Raw Potatoes.[14] There are mnemonic rhymes for historical dates, Latin case endings, and of course the familiar one for the number of days in the months of the year: Thirty days hath September. . .", etc.[15] There is even one for remembering an important rule in mixing drinks: Whiskey then beer, Never fear; Beer then whiskey, Very risky.[16] However, the examples cited should be sufficient to show the wide range of mnemonic materials. One can, from these examples, gain some insight into the structure of these devices and curiously enough, it appears that the folk theory of memory, albeit unconscious, is strikingly similar to modern psychological theory.

In the learning situations represented by the mnemonic devices in oral tradition, there is almost always a list of elements to be memorized. While the elements are not, strictly speaking, nonsense, there is frequently no logical order linking the individual discrete elements. The mnemonic technique consists of constructing a Gestalt-like structure to incorporate the list of elements. This form serves the dual purpose of ensuring, first of all, that all of the elements will be remembered, and secondly that the order of the elements will be remembered. Not only are the bones of the wrist all listed in the

mnemonic sentence, but they are listed in the anatomical order in which they occur. Psychologists have noted that subjects of experiments tend to make associations even with the most nonsensical syllables. This same associative process seems to be at work in the construction of folkloristic mnemonics.

The principal form of Gestalt linkage is a phrase or sentence. Thus the structure of language is used to aid memory. In other words, one could make up a random list of words to help remember the lines of the musical staff, but in actual tradition, the words are syntactically related: Every Good Boy Does Fine. Such a sentential Gestalt is of course not reversible the way a geometrical figure might be, so that new sentential structures have to be employed in reversing the list of elements to be remembered. Can Dead Men Vote Twice? becomes Timid Virgins Make Dull Company. (Cf. the Mnemonic spelling of "preface.")

Another principle inherent in mnemonic devices is the importance of certain stylistic features for human memory. Metrics and rhyme are two prime examples. Unrelated initial letters are strictly ordered through rhyme and rhythm in "M VEM, J SUN P." (It is noteworthy that modern advertising tries to capitalize on popular mnemonic style and rhythm. Lucky Strike cigarettes employ an abbreviated form of its slogan: Lucky Strike Means Fine Tobacco, *viz.* LS/MFT.) The use of a rhymed couplet to remember elements such as the cranial nerves (tops/hops) supports the findings of F. Theodore Perkins, who suggested that symmetry was a significant factor in visual recall. He stated that other things being equal, "an observer will not only perceive symmetrical and balanced stimulus-forms more easily than others, but he will reproduce them more easily."[17] He proposes, as a reason for this, the notion that symmetrically structured patterns require less energy to maintain. Thus symmetrically structured patterns are more stable and more likely to persist unchanged in accordance with the law of the conservation of energy. Among folklorists, it was Knut Liestøl who observed that "Tradition always endeavours (if one may put it in that way) to secure the best psychological conditions for its survival among the many things which compete for a place in human memory."[18] Apparently, the folk in their own unscientific, unwitting study of folk memory arrived at the same conclusions. Perhaps psychologists could experimentally verify folk theory. It remains to be established in a scientific manner that rhymed or metrically patterned material is more easily memorized than material which is not. The often reiterated distinction between meaningful and nonsense material is not sufficient. Distinctions in

meaningful material based upon structural and stylistic features need to be investigated. However, folklorists should also study the implicit folk theory. Structural analyses of not only mnemonic devices but all of the various genres of folklore may reveal some of the reasons for the remarkable stability of oral tradition. Walter Anderson's rather superorganic law of self-correction (Das Gesetz der Selbst-Berichtigung) may turn out to be a reflection of the characteristics of human memory. Stability may depend upon structure which in turn exists because of the needs of the human mind.

This brief consideration of mnemonic devices indicates that there is common ground for the disciplines of folklore and academic psychology. In particular, it is suggested that folk techniques of remembering have an implicit theory of psychology. Psychologists studying memory might well profit from an examination of the folk theory of memory as evidenced by the structural and stylistic characteristics of folkloristic materials. Moreover, since folkloristic materials are apparently designed for memorization, they might even prove to be excellent materials for use in psychological experimentation either instead of or in addition to the artificial devices contrived by experimental psychologists.

For folklorists, there are important theoretical implications of the unformulated folk theory of memory. Folklorists must consider the possibility that whatever the folk transmits orally does in fact have structure and further that this structure may be extremely helpful if not indispensable for the preservation of individual items in the memory of the folk. On the basis of the evidence provided by mnemonic devices, one might say that if there is no structure, the folk creates one. If this is so, the study of folklore must include the careful delineation of such structure.

Notes

[1] A. M. Hocart, "Myths in the Making," *Folklore,* 33 (1922), 67; E. L. Wilborn and Horace English, "Logical Learning and Retention: A General Review of Experiments with Meaningful Verbal Materials," *Psychological Bulletin,* 34 (1937), 2.

[2] "Marshallese Folklore Types," *JAF,* 66 (1953), 233-234; "Mnemonic Device," in *Standard Dictionary of Folklore, Mythology and Legend,* ed. M. Leach (New York: Funk and Wagnalls, 1950), II, 734-740. This is probably the best available survey of mnemonic devices from a folkloristic viewpoint.

[3] There is no bibliography of mnemonic devices but several articles provide either examples or references for specific fields. For the sciences, see Will S. DeLoach, "Chemical Mnemonic Devices," *Journal of Chemical Education,* 37 (1960), 367-368; for business education, see I. David Satlow, "Business Law Device: Mnemonics," *Business Education World,* 30 (1949-50), 83-84, or Harold J. Schneider, "Considering Mnemonics and Business Law," *Balance*

Sheet, 33 (1951-52), 400-401; for spelling, see Donald S. Klopp, "Magic Spell: Mnemonic Tricks for Your Students," *Clearing House,* 22 (1947-48), 495-497; and for an interesting appreciation of the importance of mnemonic devices, see Donald Smalley, "The Use of Memory Devices in Wartime Training," *Business Education World,* 24 (1943-44), 57-60.

[4] Some of these memory aid schemes are mentioned in John Malcolm Mitchell's excellent survey article on mnemonics in the eleventh edition (1911) of the *Encyclopaedia Britannica.* For a description of the complexity of one of these schemes, see Daniel George, "Memoranda Mnemonica," *The New Statesman and Nation,* N.S. 37 (January 22, 1949), 77-78.

[5] H. J. C. "Geography-Rhymes," *JAF,* 18 (1905), 160.

[6] Mitchell, in his *Encyclopaedia Britannica* article, cites another device for the same information. The names and lights of the sides of a ship can be remembered because the three shorter words: port, left, and red, go together in contrast to the longer starboard, right, and green.

[7] Other nautical mnemonics are found in Brakeley, *op. cit.,* p. 738. Another traditional U. S. Navy mnemonic device, one for the process involved in the manufacture of smokeless powder, is cited in John Bermingham, "Mnemonic Devices in Chemistry," *Journal of Chemical Education,* 16 (1939), 516-517.

[8] "Chemical Mnemonic Devices," *Journal of Chemical Education,* 37 (1960), 367. There is no indication as to what substance the 'o' in other refers.

[9] *The Birth and Death of the Sun* (New York: Viking Press, 1940), pp. 126-127.

[10] Brakeley, p. 738. The list of cranial nerves is not cited so that it is difficult to explain the variations in Brakeley's version.

[11] (New York: Modern Library, 1942), pp. 369, 477. DeLoach, *op. cit.,* p. 367, gives a text from McKeesport, Pennsylvania.

[12] Brakeley, p. 737. Donald S. Klopp, "Magic Spell: Mnemonic Tricks for Your Students," *Clearing House,* 22 (1947-48), 496, adds an additional couplet: "Also their, height, and leisure/Weird, seize, and seizure," while Donald Smalley in his article, "Use of Memory Devices in Wartime Training," *Business Education World,* 24 (1943-44), 59, gives a sentence which is supposed to contain the chief exceptions to the rule: "Neither leisured foreigner seized either weird height." One can thus choose between a rhyme and a sentence mnemonic.

[13] A variant mentioned by John Bermingham, *op. cit.,* p. 516, is: Every Good Boy Does Fairly. Folklorist Ellen Stekert reported hearing the following on a recent Canadian radio broadcast: Every Good Boy Deserves Fun.

[14] A Canadian variant of this classic is found in F. W. Waugh, "Canadian Folk-Lore from Ontario," *JAF,* 31 (1918), 26. See also Frederick Starr, "A Page of Child-Lore," *JAF,* IV (1891), 55.

[15] Brakeley, *op. cit.,* gives examples of these types.

[16] A German variant collected in Detroit in 1948 is contained in the Indiana University Folklore Archive. It runs as follows: "Bier nach wein, lass ess sein./ Wein nach bier, rath ich dir" (sic).

[17] "Symmetry in Visual Recall," *American Journal of Psychology,* 44 (1932), 488.

[18] Knut Liestøl, *The Origin of the Icelandic Family Sagas* (Oslo: H. Aschehoug & Co., 1930), p. 98.